METHOD, SYSTEM AND COMPUTER PROGRAM PRODUCT FOR MEASURING UNIT ACTIVITY OF AN ENZYME

ABSTRACT

A system, method and computer program product is provided for processing images of an electrophoretic separation medium to determine the unit activity of an enzyme. A test aliquot, comprising a macromolecule (such as, DNA, RNA, protein, peptide or the like) and diluted enzyme concentration, is distributed in the separation medium. The enzyme concentration acts as a catalysis to cleave the macromolecule into distinct fragments during electrophoresis. A set of intensity data profiles are produced from images of the fragments. The profiles are stacked and vertically aligned to designate and assign the fragments to their respective lanes. A group of partial bands and final bands are selected from the fragments. Peak integrations are implemented to measure the intensity of the partial and final bands. A series of intensity ratios are computed from the peak integrations. The intensity ratios are normalized and plotted to produce a trend. A threshold crossing value is derived from the effective dilution factor corresponding to a point at which the trend crosses a threshold crossing level. The threshold crossing value is used to determine a calibration factor. The calibration factor used to determine a reported unit call.